

PROBLEM 1

Given two strings , determine if they have common substring. A substring may be small as one character.

Input Format:

First line contains an integer N, denoting the number of test cases.

Following pair of N lines as:

- String s1
- String s2

Output Format:

Print YES or NO for each pair of strings.

Constraints:

String s1 and s2 consist of only characters in [a-z].

$1 \leq N \leq 10$

$1 \leq |s1|, |s2| \leq 10^5$

Sample:

input:

2

and

apple

fire

hut

Output:

YES

NO

Explanation:

“and” and “apple” have ‘a’ as common substring. So output YES.

“fire” and “hut” have nothing in common. Output NO.

PROBLEM 2

Consider some data given in following format:

<Serial .No>, <Name>, <Pan Number>, <amount>
<int> <string> <string> <int>

and answer following queries:-

- 1 S :Search whether the records(given data) for a Name S exist.
- 2 S :Search whether the records for a Pan number S exist.
- 3 S :Search the records for a Pan number prefix S and return all matching records
- 4 L R x:Update Amount of <L,R> by x; $L, R \in \text{<S.No>}$, $x \in \text{<int>}$
- 5 L R :Return withdrawal amount sum for <L,R>.

- Withdrawal amount for an individual = $\lceil \text{amount}/5 \rceil$
- $\lceil \text{amount}/5 \rceil$ is minimum integer greater than or equal to $\text{amount}/5$.
- Withdrawal amount sum $\text{<L,R>} = \lceil \text{amount}/5 \rceil \text{ of } L + \lceil \text{amount}/5 \rceil \text{ of } (L+1) + \dots + \lceil \text{amount}/5 \rceil \text{ of } R$

Input Format:

- The first line contains two space separated integers N and Q denoting number of records and number of queries respectively.
- Each of the next N lines contain comma separated values as mentioned above.
- Each of the next Q lines denotes a particular type of query as described above.

Output Format:

Print answers for all queries in a separate line, except query 4.

Query 1,2 : print 1 if record found else print 0.

Query 3,: print comma separated values with [] as : [value1,value2,value3,value4,.....] or [] (empty brackets for 0 results)

Query 5 : print sum.

Constraints:

$$1 \leq N \leq 10^5$$

$$1 \leq Q \leq 10^5$$

$$1 \leq \text{amount} \leq 10^6$$

$$1 \leq L \leq R \leq N$$

Sample:

Input:

5 7

1,liam,ALWPG5809A,1
 2,noah,ALWPG5809B,5
 3,olivia,ALWPG5809C,9
 4,rishabh sharma,ALWPG5809L,2
 5,rohan,ALWPG5886P,3
 5 1 4
 4 1 4 8
 5 2 4
 1 liam
 2 MLWPG5809B
 3 ALWPG5809
 3 MLWPG5809

Output:

5
 9
 1
 0
 [ALWPG5809A, ALWPG5809B, ALWPG5809C, ALWPG5809L]
 []

Explanation:

Initial values are [1,5,9,2,3]

First query asks $\lceil 1,4 \rceil = \lceil 1/5 \rceil + \lceil 5/5 \rceil + \lceil 9/5 \rceil + \lceil 2/5 \rceil$
 $= \lceil 0.2 \rceil + \lceil 1.0 \rceil + \lceil 1.8 \rceil + \lceil 0.4 \rceil$
 $= 1 + 1 + 2 + 1$
 $= 5$

Second query ask to add 8 to records from 1 to 4. New values [9,13,17,10,3].

Third query ask $\lceil 2,4 \rceil = \lceil 13/5 \rceil + \lceil 17/5 \rceil + \lceil 10/5 \rceil$
 $= \lceil 2.6 \rceil + \lceil 3.4 \rceil + \lceil 2 \rceil$
 $= 3 + 4 + 2$
 $= 9$

Fourth query seeks name as liam, liam exists in records hence output in 1.

Fifth query seeks MLWPG5809B as pan number , no such entry so output is 0.

Sixth query seeks pan numbers with ALWPG5809 as prefix , 4 results exist as shown in sample output.

seventh query seeks pan numbers with MLWPG5809 as prefix , 0 results denoted by empty [].

PROBLEM 3

On $N \times N$ 2D-plane an individual A, starts at (0,0) and has to reach (N-1,N-1) with possible moves $M(a,b)$.

$M(a,b)$ defines movement from some position (x_1, y_1) to some (x_2, y_2) as:

- $X_2 = X_1 \pm a$ and $Y_2 = Y_1 \pm b$ or
- $X_2 = X_1 \pm b$ and $Y_2 = Y_1 \pm a$

Also

- $5 \leq N \leq 25, 1 \leq a, b < N$

$M(a,b)$ and $M(b,a)$ define the same exact set of moves.

$M(a,b)$ is the set possible move obtained by moving a units in one direction (i.e horizontal or vertical) and b units in the perpendicular direction.

Given N , find the minimum number of moves A takes from position (0,0) to position (N-1,N-1) for each $M(a,b)$ pair where $1 \leq a, b \leq N$. If A cannot reach (N-1,N-1) for some $M(a,b)$ print -1.

Input Format:

A single integer denoting N .

Output Format :

Print exactly $N-1$ lines in which each line i (where $1 \leq i < N$) contains $N-1$ space separated integers denoting minimum number of moves A make for respective j (where $1 \leq j < N$). If A can not reach (N-1,N-1) print -1. (i.e $N-1 \times N-1$ matrix of Integers)

Constraints:

$5 \leq N \leq 25$

For example if $N=3$, Output for each possible (i,j) should be:

(1,1) (1,2)

(2,1) (2,2)

Sample:

Input:

5

Output:

4 4 2 8

4 2 4 4

2 4 -1 -1

8 4 -1 1

PROBLEM 4

A String is said to be a child of another string if it can be formed by deleting 0 or more characters from the other string. Letters cannot be rearranged. Given two strings of equal length, what is the longest string that can be constructed such that it is a child of Both?

Example

s1 = 'ABCD'

s2 = 'ABDC'

These Strings have 2 childs of max length 3, ABC and ABD. so print 3.

Input_Format:

Two lines , each with a string ,s1 and s2.

Output format:

Print length of the longest string which is a common child, or print 0 otherwise.

Constraints:

$1 \leq |s1|, |s2| \leq 5000$, where $|s|$ mean length of s.

All characters in upper case [A-Z].

Sample:

Input:

HENRY

SEAYA

Output:

2

Explanation:

The longest string that can be formed from HENRY and SEAYA is EY. |EY| is 2.

Input:

AA

BB

Output:

0

